

**IN THE CLAIMS**

**The following claim listing replaces all prior listings and versions of the claims:**

**COMPLETE LISTING OF THE CLAIMS:**

1. (Currently amended) A system for implementing a virtual solar cell, comprising:  
a data detector, including ~~a measurement~~ an insolation sensor, ~~[[and]]~~ adapted to collect external environment data;

a controller configured to receive ~~for receiving~~ real-time data from one of the data detector and a user based on an operating mode, to classify ~~classifying~~ the received data in a predetermined format, to transmit the classified data to a data logger ~~logging-unit, to generate~~ ~~generating~~ a voltage-current model having the same effect as that of an actual solar cell on the basis of the received data, and to generate ~~generating~~ a pulse width modulation signal for controlling a power converter according to the voltage-current model~~[[;]]~~,

wherein:

the power converter ~~for converting~~ is adapted to convert input power in response to the pulse width modulation signal to provide power to a load~~[[;]]~~, and

the data logger ~~logging-unit for communicating~~ is adapted to communicate with the controller or the data detector and to store the ~~according to a predetermined communication method, and storing~~ data received from the controller or the data detector.

2. (Currently amended) The system ~~for implementing a virtual solar cell as claimed in~~ according to claim 1, wherein the data detector further includes a unit cell solar battery.

3. (Currently amended) The system ~~for implementing a virtual solar cell as claimed in~~ according to claim 1, wherein the ~~measurement sensor includes~~ data detector comprises at least

one of a temperature sensor, ~~insolation sensor or~~ and a wind velocity sensor.

4. (Currently amended) The system ~~for implementing a virtual solar cell as claimed in~~ according to claim 1, wherein the data ~~logger logging unit~~ classifies data by at least one of a time, a place and a solar cell manufacturer ~~manufacturers~~ to store the data.

5. (Currently amended) The system ~~for implementing a virtual solar cell as claimed in~~ according to claim 1, wherein the controller is further configured to generate ~~generates~~ the voltage-current model on the basis of the real-time data received from the data detector or from previously stored data received from the data ~~logger logging unit~~.

6. (Currently amended) A method for implementing a virtual solar cell, comprising:  
~~allowing a controller to receive data from the outside;~~  
receiving external environmental data from one of a data detector and a user interface  
based on an operating mode;  
classifying the received data in a predetermined format ~~or stores it;~~  
generating a voltage-current model for obtaining an output characteristic of an actual solar cell on the basis of the received data;  
performing a current control according to the generated voltage-current model;  
generating a pulse width modulation signal according to a result of the performed current control; and  
controlling a power converter in response to the pulse width modulation signal.

7. (Currently amended) ~~The method for implementing a virtual solar cell as claimed in~~  
according to claim 6, wherein the external environmental data received by the controller includes  
at least one of a temperature data, an insolation data and an output characteristic data of ~~a unit~~ the  
actual solar cell.

8. (Currently amended) ~~The method for implementing a virtual solar cell as claimed in~~  
according to claim 6, wherein, in the step of classifying comprises classifying the received data  
~~or storing the data, the data is classified by at least one of a time, a place and a solar cell~~  
~~manufacturer and stored, the method further comprising:~~

storing the classified data.

9. (Currently amended) ~~The method for implementing a virtual solar cell as claimed in~~  
according to claim 6, wherein in the step of generating the a voltage-current model, the controller  
~~generates~~ comprises generating the voltage-current model on the basis of one of a real-time data  
received from a data detector or arbitrary data inputted by a user ~~through a predetermined~~  
~~method.~~

10. (Currently amended) ~~The method for implementing a virtual solar cell as claimed in~~  
according to claim 9, wherein the arbitrary data inputted by the user comprises inputting data  
using predetermined method is a method of inputting data through a user interface screen.

11. (New) The system according to claim 1, wherein the controller is further configured  
to generate the voltage-current model on the basis of one of a real-time data received from the

data detector or arbitrary data inputted by a user.

12. (New) The system according to claim 11, wherein the arbitrary data inputted by a user comprises at least one of a temperature data, insolation data, a voltage data, a current data, an open voltage data, and a short-circuit current.

13. (New) The system according to claim 12, wherein the short-circuit current corresponds to a maximum point data.

14. (New) The system according to claim 1, wherein the real-time data inputted by a user comprises at least one of a temperature data, an insolation data, a voltage data, a current data, an open voltage data and a short-circuit current data.

15. (New) A method for implementing a virtual solar cell in one of two modes, a first mode including implementing the virtual solar cell on a basis of at least one of an actually determined temperature, insolation and manufacturer, a second mode including implementing the virtual solar cell on a basis of at least one of a temperature data, an insolation data and a manufacturer data input in real-time by a user, the method comprising:

receiving environmental data from one of a data detector and a user interface;

classifying the received data in a predetermined format;

generating a voltage-current model for obtaining an output characteristic of an actual solar cell on the basis of the received data;

performing a current control according to the generated voltage-current model;

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generating a pulse width modulation signal according to a result of the performed current control; and

controlling a power converter in response to the pulse width modulation signal.